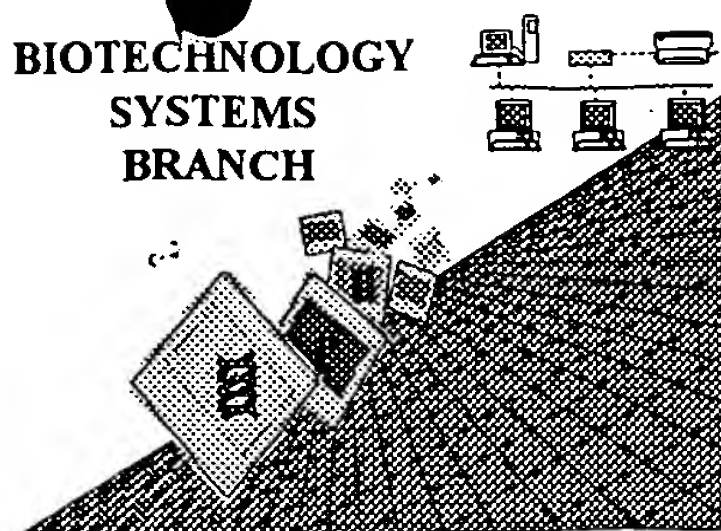


0280

BIOTECHNOLOGY
SYSTEMS
BRANCH



RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/825,423
Source: O/PF
Date Processed by STIC: 4/19/2001

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of-the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address:

<http://www.uspto.gov/web/offices/pac/checker>

Raw Sequence Listing Error Summary

ERROR DETECTED SUGGESTED CORRECTION

SERIAL NUMBER: 09/825,423

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

- 1 Wrapped Nucleics The number/text at the end of each line "wrapped" down to the next line.
This may occur if your file was retrieved in a word processor after creating it.
Please adjust your right margin to .3, as this will prevent "wrapping".
- 2 Wrapped Aminos The amino acid number/text at the end of each line "wrapped " down to the next line.
This may occur if your file was retrieved in a word processor after creating it.
Please adjust your right margin to .3, as this will prevent "wrapping".
- 3 Incorrect Line Length The rules require that a line not exceed 72 characters in length. This includes spaces.
- 4 Misaligned Amino Acid The numbering under each 5th amino acid is misaligned. This may be caused by the use of tabs
Numbering between the numbering. It is recommended to delete any tabs and use spacing between the numbers.
- 5 Non-ASCII This file was not saved in ASCII (DOS) text, as required by the Sequence Rules.
Please ensure your subsequent submission is saved in ASCII text so that it can be processed.
- 6 Variable Length Sequence(s) contain n's or Xaa's which represented more than one residue.
As per the rules, each n or Xaa can only represent a single residue.
Please present the maximum number of each residue having variable length and
indicate in the (ix) feature section that some may be missing.
- 7 PatentIn ver. 2.0 "bug" A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid
sequence(s) . Normally, PatentIn would automatically generate this section from the
previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section
to the subsequent amino acid sequence. This applies primarily to the mandatory <220>-<223>
sections for Artificial or Unknown sequences.
- 8 Skipped Sequences Sequence(s) missing. If intentional, please use the following format for each skipped sequence:
(OLD RULES) (2) INFORMATION FOR SEQ ID NO:X:
 (i) SEQUENCE CHARACTERISTICS:(Do not insert any headings under "SEQUENCE CHARACTERISTICS")
 (xi) SEQUENCE DESCRIPTION:SEQ ID NO:X:
 This sequence is intentionally skipped

Please also adjust the "(iii) NUMBER OF SEQUENCES:" response to include the skipped sequence(s).
- 9 Skipped Sequences Sequence(s) missing. If intentional, please use the following format for each skipped sequence.
(NEW RULES) <210> sequence id number
 <400> sequence id number
 000
- 10 Use of n's or Xaa's Use of n's and/or Xaa's have been detected in the Sequence Listing.
(NEW RULES) Use of <220> to <223> is MANDATORY if n's or Xaa's are present.
 In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
- 11 Use of "Artificial" Use of "Artificial" only as "<213> Organism" response is incomplete, per 1.823(b) of New Sequence Rules.
(NEW RULES) Valid response is Artificial Sequence.
- 12 Use of <220>Feature Sequence(s) are missing the <220>Feature and associated headings.
(NEW RULES) Use of <220> to <223> is MANDATORY if <213>ORGANISM is "Artificial Sequence" or "Unknown"
 Please explain source of genetic material in <220> to <223> section.
 (See "Federal Register," 6/01/98, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of new Rules)
- 13 PatentIn ver. 2.0 "bug" Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted
file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing).
Instead, please use "File Manager" or any other means to copy file to floppy disk.

OIPE

RAW SEQUENCE LISTING

DATE: 04/19/2001

PATENT APPLICATION: US/09/825,423

TIME: 12:20:06

Input Set : A:\ID01152 US sequence listing.txt

Output Set: N:\CRF3\04192001\I825423.raw

Does Not Comply
Corrected Diskette Needed

PP-35

OK->

3 <110> APPLICANT: Weber, Patricia C.
 4 Reichert, Paul
 5 Madison, Vincent S.
 6 Wyss, Daniel
 7 Yao, Nanhua
 8 Liu, Dingjiang
 9 Gesell, Jennifer
 11 <120> TITLE OF INVENTION: Hepatitis C Virus NS3 Helicase Fragments
 13 <130> FILE REFERENCE: ID01152 US
 15 <140> CURRENT APPLICATION NUMBER: US/09/825,423
 16 <141> CURRENT FILING DATE: 2001-04-03
 18 <150> PRIOR APPLICATION NUMBER: US 60/194,419
 19 <151> PRIOR FILING DATE: 2000-04-04
 21 <160> NUMBER OF SEQ ID NOS: 16
 23 <170> SOFTWARE: PatentIn Ver. 2.1
 25 <210> SEQ ID NO: 1
 26 <211> LENGTH: 631
 27 <212> TYPE: PRT
 28 <213> ORGANISM: Hepatitis C virus
 30 <400> SEQUENCE: 1
 31 Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly Leu Leu Gly Cys
 32 1 5 10 15
 34 Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu
 35 20 25 30
 37 Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr Cys Ile
 38 35 40 45
 40 Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg Thr Ile
 41 50 55 60
 43 Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val Asp Gln
 44 65 70 75 80
 46 Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr Pro
 47 85 90 95
 49 Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp
 50 100 105 110
 52 Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser
 53 115 120 125
 55 Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu
 56 130 135 140
 58 Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala Ala Val Cys Thr
 59 145 150 155 160
 61 Arg Gly Val Thr Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Glu
 62 165 170 175
 64 Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
 65 180 185 190
 67 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
 68 195 200 205
 70 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys

RAW SEQUENCE LISTING

DATE: 04/19/2001

PATENT APPLICATION: US/09/825,423

TIME: 12:20:06

Input Set : A:\ID01152 US sequence listing.txt

Output Set: N:\CRF3\04192001\I825423.raw

```

71      210      215      220
73 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
74 225      230      235      240
76 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
77      245      250      255
79 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
80      260      265      270
82 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
83      275      280      285
85 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
86      290      295      300
88 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
89 305      310      315      320
91 Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile
92      325      330      335
94 Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys
95      340      345      350
97 Ala Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys
98      355      360      365
100 His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu
101      370      375      380
103 Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile
104 385      390      395      400
106 Pro Thr Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr
107      405      410      415
109 Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val
110      420      425      430
112 Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr
113      435      440      445
115 Thr Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg
116      450      455      460
118 Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu
119 465      470      475      480
121 Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp
122      485      490      495
124 Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr Val Arg
125      500      505      510
127 Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro Val Cys Gln Asp His
128      515      520      525
130 Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr His Ile Asp Ala
131      530      535      540
133 His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu Asn Phe Pro Tyr Leu
134 545      550      555      560
136 Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro Pro Pro
137      565      570      575
139 Ser Trp Asp Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro Thr Leu
140      580      585      590
142 His Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala Val Gln Asn Glu
143      595      600      605

```

RAW SEQUENCE LISTING

DATE: 04/19/2001

PATENT APPLICATION: US/09/825,423

TIME: 12:20:06

Input Set : A:\ID01152 US sequence listing.txt

Output Set: N:\CRF3\04192001\I825423.raw

145 Val Thr Leu Thr His Pro Ile Thr Lys Tyr Ile Met Thr Cys Met Ser
 146 610 615 620
 148 Ala Asp Leu Glu Val Val Thr
 149 625 630
 153 <210> SEQ ID NO: 2
 154 <211> LENGTH: 4
 155 <212> TYPE: PRT
 156 <213> ORGANISM: Artificial Sequence
 158 <220> FEATURE:
 159 <223> OTHER INFORMATION: Description of Artificial Sequence: Peptide
 161 <400> SEQUENCE: 2
 162 Ser Asp Gly Lys
 163 1
 167 <210> SEQ ID NO: 3
 168 <211> LENGTH: 148
 169 <212> TYPE: PRT
 170 <213> ORGANISM: Hepatitis C virus
 172 <400> SEQUENCE: 3
 173 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
 174 1 5 10 15
 176 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
 177 20 25 30
 179 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
 180 35 40 45
 182 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
 183 50 55 60
 185 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
 186 65 70 75 80
 188 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
 189 85 90 95
 191 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
 192 100 105 110
 194 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
 195 115 120 125
 197 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
 198 130 135 140
 200 Ala Thr Ala Thr
 201 145
 205 <210> SEQ ID NO: 4
 206 <211> LENGTH: 142
 207 <212> TYPE: PRT
 208 <213> ORGANISM: Hepatitis C virus
 210 <400> SEQUENCE: 4
 211 Gly Ser His Met Gly Ser Val Thr Val Pro His Pro Asn Ile Glu Glu
 212 1 5 10 15
 214 Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile
 215 20 25 30
 217 Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser
 218 35 40 45

*insufficient explanation -
 give source
 of genetic
 material
 (see circled
 portion of
 Item 12 on
 Error
 Summary
 Sheet)*

RAW SEQUENCE LISTING

DATE: 04/19/2001

PATENT APPLICATION: US/09/825,423

TIME: 12:20:06

Input Set : A:\ID01152 US sequence listing.txt

Output Set: N:\CRF3\04192001\I825423.raw

```

220 Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile
221      50      55      60
223 Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr
224 65      70      75      80
226 Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe
227      85      90      95
229 Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Ser Asp Gly Lys
230      100      105      110
232 Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg
233      115      120      125
235 Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
236      130      135      140
240 <210> SEQ ID NO: 5
241 <211> LENGTH: 288
242 <212> TYPE: PRT
243 <213> ORGANISM: Hepatitis C virus
245 <400> SEQUENCE: 5
246 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
247 1      5      10      15
249 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
250      20      25      30
252 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
253      35      40      45
255 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
256      50      55      60
258 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
259 65      70      75      80
261 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
262      85      90      95
264 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
265      100      105      110
267 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
268      115      120      125
270 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
271      130      135      140
273 Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile
274 145      150      155      160
276 Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys
277      165      170      175
279 Ala Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys
280      180      185      190
282 His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu
283      195      200      205
285 Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile
286      210      215      220
288 Pro Thr Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr
289 225      230      235      240
291 Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Ser Asp
292      245      250      255

```


RAW SEQUENCE LISTING

DATE: 04/19/2001

PATENT APPLICATION: US/09/825,423

TIME: 12:20:06

Input Set : A:\ID01152 US sequence listing.txt

Output Set: N:\CRF3\04192001\I825423.raw

294 Gly Lys Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr
 295 260 265 270
 297 Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
 298 275 280 285
 305 <210> SEQ ID NO: 6
 306 <211> LENGTH: 241
 307 <212> TYPE: PRT
 308 <213> ORGANISM: Hepatitis C virus
 310 <400> SEQUENCE: 6
 311 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
 312 1 5 10 15
 314 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
 315 20 25 30
 317 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
 318 35 40 45
 320 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
 321 50 55 60
 323 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
 324 65 70 75 80
 326 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
 327 85 90 95
 329 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
 330 100 105 110
 332 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
 333 115 120 125
 335 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
 336 130 135 140
 338 Ala Thr Ala Thr Pro Pro Gly Ser Gly Met Phe Asp Ser Ser Val Leu
 339 145 150 155 160
 341 Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala
 342 165 170 175
 344 Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro
 345 180 185 190
 347 Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu
 348 195 200 205
 350 Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu
 351 210 215 220
 353 Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala
 354 225 230 235 240
 356 Gln
 361 <210> SEQ ID NO: 7
 362 <211> LENGTH: 4
 363 <212> TYPE: PRT
 364 <213> ORGANISM: Artificial Sequence
 366 <220> FEATURE:
 367 <223> OTHER INFORMATION: Description of Artificial Sequence: Peptide
 369 <400> SEQUENCE: 7
 370 Gln Gly Gly Ala
 371 1

Please correct
 this error in
 subsequent sequences,
 too

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/825,423

DATE: 04/19/2001

TIME: 12:20:07

Input Set : A:\ID01152 US sequence listing.txt

Output Set: N:\CRF3\04192001\I825423.raw

L:15 M:270 C: Current Application Number differs, Replaced Application Number

L:16 M:271 C: Current Filing Date differs, Replaced Current Filing Date